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PMS Punjab - 2021

Q7(a)

$$D_0 = \text{RS } 10$$

$$\text{Price of Share} = \text{RS } 200$$

Life = unlimited

$$g = 12\% \text{ forever}$$

$$i = ?$$

$$\text{Formula} = V = \frac{D_0(1+g)}{i-g}$$

$$200 = \frac{10(1+0.12)}{i-0.12}$$

$$200 = \frac{11.2}{i-0.12}$$

$$200(i-0.12) = 11.2$$

$$200i - 24 = 11.2$$

$$i = \frac{11.2 + 24}{200}$$

$$i = 17.6\%$$

(b) $g_1 - 5 = 20\%$
 $g_6 - \infty = 10\%$
 $i = ?$

trial and error ?

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PMS Punjab - 2019

Q7 Present value = $\frac{\text{Future value}}{(1+r)^n}$

= $\frac{100}{(1+0.08)^6}$

= \$63.02

Q10 $D_0 = 3$

$g_{1-2} = 25\%$

$g_{3-5} = 20\%$

$g_{6-\infty} = 15\%$

$i = 18\%$

Value = ?

Solution:-

$D_1 = 3(1.25)$
= 3.75

$D_2 = 3.75(1.25)$
= 4.69

$D_3 = 4.69(1.20)$
= 5.62

$D_4 = 5.62(1.20)$
= 6.74

$D_5 = 6.74(1.20)$
= 8.09

$D_6 = 8.09(1.15)$
= 9.30

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g_1
 g_3
 g_9

$$PV_5 = \frac{9.30}{0.03}$$

$$= 310$$

Present value of all inflows

$$\frac{3.75}{(1.18)^1} + \frac{4.69}{(1.18)^2} + \frac{5.62}{(1.18)^3} + \frac{6.74}{(1.18)^4} + \frac{8.09}{(1.18)^5} + \frac{310}{(1.18)^5}$$

$$= 3.18 + 3.37 + 3.42 + 3.48 + 3.54 + 135.5$$

$$= 152.49$$

Value of Share = RS 152.49

PMS Punjab 2017

$$D_0 = 2$$

$$g_{1-2} = 20\%$$

$$g_{3-5} = 15\%$$

$$g_{6-\infty} = 12\%$$

$$i = 15\%$$

Value = ?

Solution :-

$$D_1 = 2(1.20)$$

$$= 2.4$$

$$D_2 = 2.4(1.2)$$

$$= 2.88$$

$$D_3 = 2.88(1.15)$$

$$= 3.31$$

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$$D_4 = 3.31(1.15)$$

$$= 3.81$$

$$D_5 = 3.81(1.15)$$

$$= 4.38$$

$$D_6 = 4.38(1.12)$$

$$= 4.91$$

$$V_5 = \frac{D_6}{i-g}$$

$$= \frac{4.91}{15\% - 12\%}$$

$$= 163.67$$

$$= 4.91$$

$$= 163.67$$

$$= 163.67$$

$$= 163.67$$

Present values of all inflows

$$2.4 + \frac{2.88}{(1.15)^1} + \frac{3.31}{(1.15)^2} + \frac{3.81}{(1.15)^3} + \frac{4.38}{(1.15)^4} + \frac{4.91}{(1.15)^5} + 163.67$$

$$= 2.69 + 2.17 + 2.18 + 2.18 + 2.18 + 81.37$$

$$= 92.17$$

Value of share = RS 92.17

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PMS P₀

$$D_0 = 3.0$$

$$D_1 = 3.0$$

$$D_2 = 3.0$$

$$D_3 = 3.0$$

$$D_4 = 3.0$$

$$D_5 = 3.0$$

$$D_6 = 3.0$$

$$D_7 = 3.0$$

$$D_8 = 3.0$$

$$D_9 = 3.0$$

$$D_{10} = 3.0$$

$$D_{11} = 3.0$$

$$D_{12} = 3.0$$

$$D_{13} = 3.0$$

$$D_{14} = 3.0$$

$$D_{15} = 3.0$$

$$D_{16} = 3.0$$

$$D_{17} = 3.0$$

$$D_{18} = 3.0$$

$$D_{19} = 3.0$$

$$D_{20} = 3.0$$

$$D_{21} = 3.0$$

$$D_{22} = 3.0$$

$$D_{23} = 3.0$$

$$D_{24} = 3.0$$

$$D_{25} = 3.0$$

$$D_{26} = 3.0$$

$$D_{27} = 3.0$$

$$D_{28} = 3.0$$

$$D_{29} = 3.0$$

$$D_{30} = 3.0$$

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PMS Punjab - 2014

$$D_0 = 3.40$$

$$g_{2-3} = 5\%$$

$$g_4 = 15\%$$

$$g_{5-\infty} = 10\%$$

$$i = 14\%$$

$$V = ?$$

Solution

$$D_1 = 3.40$$

$$D_2 = 3.40(1.05)$$

$$= 3.57$$

$$D_3 = 3.57(1.05)$$

$$= 3.74$$

$$D_4 = 3.74(1.15)$$

$$= 4.3$$

$$D_5 = 4.3(1.10)$$

$$= 4.73$$

$$\sum_{t=1}^{\infty} D_t = 4.73 = 118.25$$

$$i - g = 0.04$$

Present value of all inflows

$$(3.40 \times 0.87712) + (3.57 \times 0.7695) + (3.74 \times 0.6756)$$

$$+ (4.3 \times 0.5921) + (118.25 \times 0.5921)$$

$$2.98 + 2.74 + 2.52 + 2.55 + 70.02$$

$$= 80.81$$

Price of Share = RS 80.81

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CSS - 2013

Q10: Value of share = \$50

$$i = 13\%$$

$$g = 5\% \text{ constant}$$

life = unlimited

$$D_0 = ?$$

Gordon Growth Model :-

$$\text{Value} = \frac{D_0(1+g)}{i-g}$$

$$i-g$$

$$50 = \frac{D_0(1+0.05)}{0.08}$$

$$0.08$$

$$D_0(1.05) = 4$$

$$D_0 = 3.81$$

The recent dividend (D_0) was \$3.81

CSS - 2009

$$D_i = 1$$

$$i = 14\%$$

life = unlimited

$$\text{Value} = \frac{D_i}{i} = \frac{1}{0.14} = \$7.14$$

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CSS

Divid

Price

i

Per

CSS

D_0

$g_1 - g$

$g_5 -$

$g_9 -$

i

N

S

D_1

D_2

D_3

D_4

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CSS - 2010

$$\text{Dividend} = \$3.25$$

$$\text{Price} = \$48.625$$

$$i = ?$$

Perpetuity formula:

$$V = \frac{D}{i}$$

$$48.625 = \frac{3.25}{i}$$

$$i = 6.71\%$$

CSS - 2017

$$D_0 = 1.50$$

$$g_{1-4} = 20\%$$

$$g_{5-8} = 13\%$$

$$g_{9-\infty} = 7\%$$

$$i = 16\%$$

$$V = ?$$

Solution

$$D_1 = 1.50(1.2) = 1.8$$

$$D_2 = 1.8(1.2) = 2.16$$

$$D_3 = 2.59$$

$$D_4 = 2.59(1.2) = 3.11$$

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$$D5 = 3.11 (1.13)$$

$$= 3.51$$

$$D6 = 3.51 (1.13)$$

$$= 3.97$$

$$D7 = 3.97 (1.13)$$

$$= 4.49$$

$$D8 = 4.49 (1.13)$$

$$= 5.07$$

$$D9 = 5.07 (1.07)$$

$$= 5.42$$

$$N_8 = D_9 = 5.42 = 60.22$$

$$i - g = 0.09$$

Present values of all inflows

$$\frac{1.8}{(1.16)^1} + \frac{2.16}{(1.16)^2} + \frac{2.59}{(1.16)^3} + \frac{3.11}{(1.16)^4} + \frac{3.51}{(1.16)^5}$$

$$+ \frac{3.97}{(1.16)^6} + \frac{4.49}{(1.16)^7} + \frac{5.07}{(1.16)^8} + \frac{60.22}{(1.16)^8}$$

$$= 1.55 + 1.60 + 1.65 + 1.72 + 1.67 + 1.63 + 1.59 + 1.55 + 18.37$$

$$= 31.33$$

Value of Stock = \$ 31.33

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CSS - 2002

1. Accounts Receivable

3. Current

Current

Average collection period = $\frac{\text{Receivables} \times 365}{\text{Sales}}$

$$40 = \frac{x}{1000} \times 365$$

1000

$$x = \frac{40 \times 1000}{365} = 109.6$$

Receivables = \$109.6

Current

4.

Total

2. Current liabilities

Total

Quick Ratio = $\frac{\text{Cash} + \text{Receivables}}{\text{Current liability}}$

$$2 = \frac{100 + 109.6}{x}$$

x

$$x = \frac{100 + 109.6}{2}$$

2

$$x = 104.8$$

Current liabilities = \$104.8

Return

F

Return

3. Current Assets

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

5 x 365

365

$$3 = \frac{x}{104.8}$$

'104.8

109.6

$$x = 314.4$$

$$\boxed{\text{Current Assets} = \$314.4}$$

4. Total Assets

$$\begin{aligned} \text{Total Assets} &= \text{Current Assets} + \text{Fixed Assets} \\ &= 314.4 + 283.5 \\ &= \$597.9 \end{aligned}$$

$$\boxed{\text{Total Assets} = \$597.9}$$

5. Return on Assets Turnover (ROA)

$$\text{Formula} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

$$= \frac{50}{597.9} \times 100$$

$$= 8.36\%$$

$$\boxed{\text{Return on Assets} = 8.36\%}$$

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6. Common Stock Equity

Return on Equity = $\frac{\text{Net Profit} \times 100}{\text{Equity}}$

$$12.1 = \frac{50 \times 100}{x}$$

$$x = \frac{50 \times 100}{12}$$

$$x = 416.7$$

$$\boxed{\text{Equity} = \$416.7}$$

7. Long term Debt

Assets = Equity + Liabilities

$$597.9 = 416.7 + x$$

$$x = \$181.2$$

Long term debt = Total liabilities
- Current liabilities

$$= 181.2 - 104.8$$

$$= 76.4$$

$$\boxed{\text{Long term debt} = \$76.4}$$

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CSS

a) Accou

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b) Amo

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CSS - 2006

5

(a) Accounts Receivable

Receivable collection period = $\frac{\text{Receivables} \times 360}{\text{Sales}}$

$$40 = \frac{x}{1600000} \times 360$$

$$x = \frac{40 \times 1600000}{360}$$

$$x = 177777.8$$

Receivables = \$177,777.8

b) Amount of inventory

W1 \rightarrow Cost of goods sold = 80% of Sales

$$= 80\% \text{ of } 1600,000 \\ = 1280,000$$

Inventory turnover = $\frac{\text{Cost of goods sold}}{\text{Average Inventory}}$

$$8 = \frac{1280,000}{x}$$

$$x = 160,000$$

Inventory = \$160,000

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CSS - 2003

(b)

(i) Improve

(ii) no change

(iii) no change

(iv) Improve

(c) Debt to Total Asset Ratio

$$\text{Assets} = \text{Capital} + \text{Debt}$$

$$500,000 = 200,000 + x$$

$$x = \$300,000$$

$$\text{Debt to Asset Ratio} = \frac{\text{Total debt} \times 100}{\text{Total Assets}}$$

$$= \frac{300,000 \times 100}{500,000}$$

$$\text{Debt Ratio} = 60\%$$

CSS - 2004

Often times, companies earn good amount of revenue and efficiently control their expenses. This results in large operating profits for such companies. Yet, they still find it difficult to meet the ^{debt} ~~debt~~ ^{refined} obligations. This scenario is referred to as business financial risk that arises due to mismanagement and poor decision making.

The prime reason of financial risk is the problem in the company's capital structure. Capital structure is a firm's permanent long term financing represented by debt and equity. For instance, firm having capital structure ratio of 50% debt and 50% equity suggest that both debt and equity contribute equally to the financing. Changing the financing mix of the capital structure will affect the firm's cost of capital that may result in financial risk. This is likely to happen if a company significantly raises the proportion of debt as compared to equity. Debt is a cheaper source of finance but it should be used up to the extent where companies are able to meet their debt obligations and are able to benefit from financial leverage. If a company raises its debt proportion,

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for example to 80%, the burden of interest payment will increase which the company may not be able to pay off. Hence, due to poor management of capital structure, the company may not be able to meet its debt payments despite earning huge operating profits.

Thankfully, there are many ^{financial} ratios that can be used to detect such situation beforehand. The ratios are as follows:

$$\textcircled{1} \text{ Debt to Equity Ratio} = \frac{\text{Total debt}}{\text{Total equity}}$$

Debt to equity ratio tells us the amount of debt as a proportion of equity.

This ratio clearly indicates that how much of a company's financing relies on debt as compared to equity.

A high debt to equity ratio implies a more levered company and is likely to face financial risk. In contrast, a lower debt to equity ratio signals a low financial risk. A company witnessing an increasing trend in this ratio can take preventive measures such as the restructuring of capital and save itself from default. Thus, this ratio is highly useful in taking these key decisions.

1) Interest coverage ratio = $\frac{\text{Earning before interest and tax (EBIT)}}{\text{Interest Expense}}$

Interest coverage is another very important ratio to assess the financial risk of companies. This ratio is a direct measure of a company's ability to honor its debt payments. For example, the interest coverage of 7 indicates that the company can pay / cover its interest payments seven times from its ~~financial earning~~ operating profit. A high interest coverage ratio signals favourable position and low financial risk and vice versa. This ratio is highly popular in assessing the firm's ability to pay its debt.

2) Debt to Asset Ratio = $\frac{\text{Total debt}}{\text{Total Assets}}$

This ratio represents how much debt a company owns as compared to its assets. Once again, this ratio can be used to assess the company's ability to service its debts. A high debt to asset ratio signals financial risk because it suggests that the firm has borrowed huge funds to finance its assets. By computing this ratio, company will know where it stands and take decisions accordingly.

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(4)

$$\text{Net Profit Margin} = \frac{\text{Net Profit} \times 100}{\text{Sales}}$$

This ratio may not directly measure the business ability to pay its debt but can be used as a signal if the ratio is low or continuously declining. The management can then assess that whether the decline is due to rising debt payments or any other ~~reason~~ factor. If the reason for the declining ratio is increasing debt payment, it would be easily identified by computing this ratio.

Debt to Equity Ratio

Interest Coverage ratio

Financial Risk Indicators

Debt to Asset Ratio

Net Profit Margin

Acid

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CSS - 2015

Current Ra

Current

Current

Acid Test

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CSS - 2015 (A and A)

Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$= \frac{30,000 + 200,000 + 400,000}{230,000 + 200,000 + 100,000}$$

$$= \frac{630,000}{530,000} = 1.19 : 1$$

$$\text{Current Ratio} = 1.19 : 1$$

Acid Test Ratio

$$\text{Acid Test Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$= \frac{630,000 - 400,000}{530,000}$$

$$= \frac{230,000}{530,000}$$

$$= 0.43 : 1$$

$$\text{Acid Test Ratio} = 0.43 : 1$$

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3. Average collection period:-

$$\text{Formula} = \frac{\text{Receivables} \times 365}{\text{Sales}}$$

$$= \frac{200,000 \times 365}{4000,000}$$

$$\text{Collection Period} = 18.25 \text{ days}$$

4. Inventory Turnover

$$\text{Formula} = \frac{\text{Cost of goods Sold}}{\text{Inventory}}$$

$$= \frac{3200,000}{400,000}$$

$$\text{Inventory Turnover} = 8 \text{ times}$$

5. Debt / Equity

$$\text{Formula} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

$$= \frac{530,000 + 300,000}{100,000 + 500,000}$$

$$= \frac{830,000}{600,000}$$

$$= 1.38 \text{ (approx)}$$

$$= 1.38$$

$$\text{Debt to Equity} = 1.38 : 1$$

Long term debt / Gross Profit Margin

$$\text{Gross Profit} = \text{Sales} - \text{Cost of Goods Sold}$$

$$= 4000,000 - 3,200,000$$

$$= 800,000$$

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit} \times 100}{\text{Sales}}$$

$$= \frac{800,000 \times 100}{4000,000}$$

$$= 20\%$$

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7. Net Profit Margin

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Sales}}$$

$$= \frac{300,000 \times 100}{4,000,000}$$

$$\text{Net Profit Margin} = 7.5\%$$

8. Total Assets Turnover

$$\text{Formula} = \frac{\text{Sales}}{\text{Total Assets}}$$

$$= \frac{4,000,000}{1,430,000}$$

$$= \$2.79$$

9. Return on Assets (ROA)

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Total Assets}}$$

$$= \frac{300,000 \times 100}{1,430,000}$$

$$\text{ROA} = 20.9\%$$

CSS - 2007 (A and A)

Current Assets

$$\text{Current Ratio} = 2.5 : 1$$

$$\text{Working Capital} = 150,000$$

The difference between current assets and current liabilities in ratio is 1.5 (2.5-1) which is 150,000 working capital in value.

Hence,

Current Assets		Working Capital
2.5	X	1.5
x		150,000

$$\begin{aligned} \text{Value of current Assets} &= \frac{150,000 \times 2.5}{1.5} \\ &= \$ 250,000 \end{aligned}$$

Current liabilities

$$\begin{aligned} \text{Working Capital} &= \text{Current Assets} \\ &\quad - \text{Current liabilities} \end{aligned}$$

$$150,000 = 250,000 - x$$

$$x = \$ 100,000$$

OR

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$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$2.5 = \frac{250,000}{x}$$

$$x = 100,000$$

$$\text{Current liabilities} = \$100,000$$

(c) Stock

$$\text{Liquid Ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$1.5 = \frac{x}{100,000}$$

$$x = 150,000$$

$$\text{Inventory / Stock} = 250,000 - 150,000$$

$$\text{Stock} = 100,000$$

(d) Liquid Assets

$$\text{Liquid Assets} = \$150,000$$

Fixed assets

$$\text{Propriety Ratio} = \frac{\text{Equity}}{\text{Fixed assets}}$$

$$0.75 = \frac{100,000}{x}$$

$$x = 133333$$

$$\text{Fixed Assets} = 133333$$

CSS - 2009 (A and A)

Working 1 (W1)

$$\text{Average collection period} = \frac{\text{Receivables} \times 360}{\text{Sales}}$$

$$40 = \frac{x \times 360}{1800000}$$

$$x = \frac{1800000 \times 40}{360} = 200,000$$

$$\text{Receivables (W1)} = 200,000$$

Working 2 (W2)

Sales (100%) 1800,000

CGS (75%) (1350,000)

Gross Profit (25%) 450,000

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$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}}$$

$$6 = \frac{1350,000}{x}$$

$$x = 225,000$$

$$\text{Inventory (W2)} = \text{Rs } 225,000$$

W3:-

$$\text{Asset turnover ratio} = \frac{\text{Sales}}{\text{Total assets}}$$

$$1.20 = \frac{1800,000}{x}$$

$$x = 1,500,000$$

$$\text{Fixed Assets} = \text{Total assets} - \text{current assets}$$

$$= 1,500,000 - (30,000 + 25,000 + 200,000 + 225,000)$$

$$= 1,500,000 - 480,000$$

$$= 1,020,000$$

$$\text{Net fixed assets} = \text{Rs } 1,020,000$$

Working # 4

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$1.60 = \frac{480,000}{x}$$

$$x = 300,000$$

$$\begin{aligned} \text{Notes Payable} &= 300,000 - 120,000 - 20,000 \\ &= 160,000 \end{aligned}$$

$$\boxed{\text{Notes Payable} = \text{Rs } 160,000}$$

Working 5

$$\text{Debt Ratio} = \frac{\text{Total debt}}{\text{Total Assets}}$$

$$0.6 = \frac{x}{1500,000}$$

$$x = 900,000$$

$$\text{Long term debt} = 900,000 - 300,000$$

$$\boxed{\text{Long term debt} = \text{Rs } 600,000}$$

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CSS - 2012 (A and A)

Q8(a)

$$\text{Current Ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$2 = \frac{x}{100,000}$$

$$100,000$$

$$\text{Current assets} = 200,000$$

$$\text{Quick Ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$1.4 = \frac{x}{100,000}$$

$$100,000$$

$$x = 140,000$$

$$\text{Inventory} = 200,000 - 140,000 = 60,000$$

To find cost of goods sold:-

$$\text{Inventory turnover} = \frac{\text{CGS}}{\text{Inventory}}$$

$$6 = \frac{x}{60,000}$$

$$\text{Cost of goods sold} = 360,000$$

To find Sales:-

Cost of goods sold is 80% of sales

Hence,

$$360,000 \times \frac{100}{80} = 450,000$$

80

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Sales (100%)	450,000
Less CGS (80%)	(360,000)
Gross Profit (20%)	90,000

CSS - 2016 (A and A)

Current Ratio

$$\begin{aligned} \text{Formula} &= \frac{\text{Current Assets}}{\text{Current liabilities}} \\ &= \frac{3800}{1680} \\ &= 2.26 : 1 \end{aligned}$$

Acid Test Ratio

$$\begin{aligned} \text{Formula} &= \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \\ &= \frac{3800 - 2100}{1680} \\ &= 1.01 : 1 \end{aligned}$$

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Average collection period

$$\text{Formula} = \frac{\text{Receivables} \times 365}{\text{Sales}}$$

$$= \frac{1300000 \times 365}{1268000}$$

$$= 37.4 \text{ days}$$

Inventory turnover ratio

$$\text{Formula} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$

$$= \frac{8930 - 480}{2100}$$

$$= 4 \text{ times}$$

Debt to net worth ratio

$$\text{Formula} = \frac{\text{Total debt}}{\text{Equity}}$$

$$= \frac{1680 + 2000}{3440}$$

$$= \frac{3680}{3440}$$

$$= 1.07 : 1$$

Gross Profit Margin

$$\begin{aligned} \text{adjusted gross profit} &= 3750 + 480 \\ &= 4230 \end{aligned}$$

$$\text{Gross profit margin} = \frac{\text{Gross Profit} \times 100}{\text{Sales}}$$

$$= \frac{4230 \times 100}{12680}$$

$$= 33.4\%$$

Net Profit Margin

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Sales}}$$

$$= \frac{670 \times 100}{12680}$$

$$= 5.28\%$$

Return on Common Stock Equity

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Equity}}$$

$$= \frac{670 \times 100}{3440}$$

$$= 19.48\%$$

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CSS - 2014 (A and A)

Current Ratio

$$\text{Formula} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$\begin{aligned}\text{Current Assets} &= 10,000 + 30,000 + 60,000 \\ &\quad + 40,000 \\ &= 140,000\end{aligned}$$

$$\begin{aligned}\text{Current liabilities} &= 12,000 + 20,000 + 2,000 \\ &\quad + 26,000 \\ &= 60,000\end{aligned}$$

$$\begin{aligned}\text{Current ratio} &= \frac{140,000}{60,000} \\ &= 2.33 : 1\end{aligned}$$

Acid Test Ratio

$$\text{Formula} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$= \frac{140,000 - 60,000}{60,000}$$

$$= 1.33 : 1$$

Debt to Equity Ratio

$$\text{Formula} = \frac{\text{Total debt}}{\text{Equity}}$$

$$\begin{aligned}\text{Total debt} &= 60,000 + 140,000 \\ &= 200,000\end{aligned}$$

$$\begin{aligned}\text{Total Equity} &= 120,000 + 80,000 \\ &= 200,000\end{aligned}$$

$$\text{Debt to Equity ratio} = \frac{200,000}{200,000}$$

$$= 1 : 1$$

Gross Profit Ratio

$$\text{Formula} = \frac{\text{Gross Profit} \times 100}{\text{Sales}}$$

$$\begin{aligned}\text{Gross Profit} &= \text{Sales} - \text{Cost of sales} \\ &= 600,000 - 516,000 \\ &= 84,000\end{aligned}$$

$$\text{Gross Profit margin} = \frac{84,000 \times 100}{600,000}$$

$$= 14\%$$

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Operating Ratio

$$\text{Formula} = \frac{\text{Operating Profit} \times 100}{\text{Sales}}$$

To find operating profit :-

$$\begin{aligned} \text{Interest} &= 6\% \text{ of } 140,000 \\ &= 8400 \end{aligned}$$

$$\text{Tax} = 20,000$$

$$\text{Operating Profit} = \text{Net Profit} + \text{Tax} + \text{Interest}$$

$$\begin{aligned} &= 20,000 + 20,000 + 8400 \\ &= 48400 \end{aligned}$$

$$\text{Operating Ratio} = \frac{48400}{600,000} \times 100$$

$$= 8.07\%$$

CSS - 2012 (A and A)

Working Capital

Formula = Current Assets - Current liabilities

$$\begin{aligned} \text{Current Assets} &= \text{Cash} + \text{Ending Account} \\ &\quad \text{Receivables} + \text{Ending Inventory} + \\ &\quad \text{Marketable securities} \end{aligned}$$

$$\begin{aligned} &= 108,000 + 350,000 + 150,000 \\ &\quad + 142,000 \\ &= \text{Rs } 750,000 \end{aligned}$$

$$\begin{aligned} \text{Current liabilities} &= \text{Accounts Payable} \\ &\quad + \text{Bills Payable} \end{aligned}$$

$$\begin{aligned} &= 200,000 + 50,000 \\ &= 250,000 \end{aligned}$$

$$\text{Working Capital} = 750,000 - 250,000$$

$$= \text{Rs } 500,000$$

Current Ratio

Formula =
$$\frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$= \frac{750,000}{250,000}$$

$$= 3 : 1$$

DATE: ___/___/___

3. Quick Ratio

$$\text{Formula} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$= \frac{750,000 - 150,000}{250,000}$$

$$= 2.4 : 1$$

4. Inventory Turnover

$$\text{Formula} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$

$$\text{Average Inventory} = \frac{\text{Beginning} + \text{Ending}}{2}$$

$$= \frac{120,000 + 150,000}{2}$$

$$= 135,000$$

$$\text{Inventory Turnover} = \frac{540,000}{135,000}$$

$$= 4 \text{ times}$$

5. Accounts Receivables Turnover

$$\text{Formula} = \frac{\text{Net Credit Sales}}{\text{Average Receivables}}$$

$$\text{Average Receivables} = \frac{\text{Beginning} + \text{Ending}}{2}$$

$$= \frac{380,000 + 350,000}{2}$$

$$= 365000$$

$$\text{Receivables Turnover} = \frac{1825000}{365000}$$

$$= 5 \text{ days}$$

Gross Profit Percentage

$$\text{Formula} = \frac{\text{Gross Profit} \times 100}{\text{Sales}}$$

Sales	1825000
Cost of sales	(540,000)
Gross Profit	1285000

$$\text{Gross Profit Margin} = \frac{1285000 \times 100}{1825000}$$

$$= 70.4\%$$

Net Profit Margin

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Sales}}$$

$$\text{Net Profit} = \text{Gross Profit} - \text{total operating expenses}$$

$$= 1285000 - 600,000$$

$$= 685000$$

$$\text{Net Profit Margin} = \frac{685000 \times 100}{1825000} = 37.5\%$$

DATE: ___/___/___

8. Operating Expense Rate

$$\text{Formula} = \frac{\text{Operating Expenses}}{\text{Sales}} \times 100$$

$$= \frac{600,000}{1825000} \times 100$$

$$= 32.88\%$$

CSS - 2016

Q5

(i) Receivables

$$\text{Days Sales Outstanding} = \frac{\text{Receivables} \times 365}{\text{Sales}}$$

$$40.55 = \frac{x \times 365}{1000}$$

$$x = 111.09$$

$$\text{Receivables} = 111.09 \text{ (millions of Rs)}$$

5. (ii) Current Assets

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$3 = \frac{x}{105.50}$$

$$x = 316.5$$

Current assets = Rs 316.5 million

Total Assets

Total Assets = Current + fixed assets

$$= 316.5 + 283.50$$

$$= \text{Rs } 600 \text{ million}$$

Return on total Assets

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Total assets}}$$

$$= \frac{50 \times 100}{600}$$

$$= 8.33\%$$

$$= 8.33\%$$

Common Equity

$$\text{Return on Equity} = \frac{\text{Net Profit} \times 100}{\text{Equity}}$$

$$0.12 = \frac{50}{x}$$

$$x = 416.67$$

Equity = Rs 416.67 million

DATE: ___/___/___

(vi) Quick Ratio

$$\text{Formula} = \frac{\text{Cash and equivalents} + \text{Receivables}}{\text{Current liabilities}}$$

$$= \frac{100 + 111.09}{105.50}$$

$$= 2 : 1$$

(vii) Long term debt:

$$\text{Assets} = \text{Capital} + \text{Liabilities}$$

$$600 = 416.67 + x$$

$$x = 183.33$$

$$\text{Current long term debt} = \text{Total debt} - \text{Current liabilities}$$

$$= 183.33 - 105.50$$

$$= \text{RS } 77.83 \text{ million}$$

CSS - 2005

Year 2000

$$\begin{aligned} \text{Current Ratio} &= \frac{20,000}{10,000} \\ &= 2 : 1 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{20,000 - 8200}{10,000} \\ &= 1.18 : 1 \end{aligned}$$

Year 2001

$$\begin{aligned} \text{Current ratio} &= \frac{22400}{10200} = 2.19 : 1 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{22400 - 10,000}{10200} \\ &= 1.21 : 1 \end{aligned}$$

Year 2002

$$\begin{aligned} \text{Current ratio} &= \frac{25600}{10700} = 2.39 : 1 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{25600 - 12500}{10700} \\ &= 1.22 : 1 \end{aligned}$$

DATE: ___/___/___

Year 2003

$$\text{Current Ratio} = \frac{28100}{11000}$$

$$= 2.55 : 1$$

$$\text{Quick Ratio} = \frac{28100 - 14000}{11000}$$

$$= 1.28 : 1$$

(b) Business liquidity position refers to its ability to convert assets into cash without affecting the assets value to cover any short term obligations. A good liquidity position means that business has enough current assets to pay current liabilities and vice versa. Two most common liquidity ratios are current and quick ratio that compare current assets to current liabilities and give an insight of firm's liquidity position.

The current and quick ratios of Royal Corporation depict an improving liquidity position over a period of four years.

The current ratio in the year 2000 was 2:1 which means the

the current assets double the amount of current liabilities. This is the ideal scenario that represents a strong liquidity position. This is because it indicates that the corporation has enough liquid resources to pay short term obligations. Royal corporation will not face the cash shortage due to adequate liquid assets. Since 2000, the current ratio continued to rise in the coming years that further reinforces the firm's improving liquidity position.

The quick Ratio is a conservative ratio as it excludes inventory from the current assets. For Royal Corporation, the ~~current~~ quick ratio is still more than 1 and is also rising in the four year period. This is a positive signal that indicates that the current assets of the firm are consumed by more liquid ~~assets~~ assets instead of inventory. It is because even after deducting the inventory from the current assets, the business is still in a position to cover current liabilities. All these factors signify that increasing current assets comprise of more liquid assets which further result in less chances of cash shortage and insolvency.

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Liquidity position of Royal Corporation can also be assessed by calculating **Net Working Capital** which measures the difference between current assets and current liabilities in absolute terms.

The net working capital for Royal Corporation over four years is as follows:-

Year	Net Working Capital
2000	$20,000 - 10,000 = 10,000$
2001	$22,400 - 10,200 = 12,200$
2002	$25,600 - 10,700 = 14,900$
2003	$28,100 - 11,000 = 17,100$

It can be clearly seen that the amount of working capital is rising from 2000 - 2003, signalling the improvement in the corporation's liquidity position.

Overall, it can be concluded that the short term financial health of the Royal Corporation is satisfactory and it has gradually moved in the positive direction over the four year time period. However, it is also important to note that a very high liquid assets may indicate that the corporation is not using current assets efficiently which may negatively impact the long term solvency of the firm.

CSS - 2009

Ratio Analysis

Ratio refers to the quantitative relation between two variables. Similarly, in the world of financial reporting, ratio analysis is a tool to compare relationships between the financial statement accounts.

Ratio analysis is not merely the calculation of ratio but more important in the interpretation of the ratio value. The interpretation is then used to analyze and monitor the firm's performance. Ratio analysis is of great interest to:

Shareholders

Creditors

firm's own management

potential investors

potential lenders

All these parties use ratio analysis to assess financial health of business from period to period. Ratio analysis mark how a firm is performing over time while comparisons can also be made with ~~the~~ other firm with in same industry or sector. Ratio analysis is regarded as a cornerstone to analyse business financial health as it provides useful insights of firm's liquidity,

DATE: ___/___/___

profitability, efficiency and solvency.

List of ratios and their use

① Current Ratio

$$\text{Formula} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current ratio is a liquidity ratio which is used to measure the short term solvency of the firm. In simple words, this ratio is used to assess that whether the business is able to have enough liquid assets to meet its short term debt obligations. The current ratio of 2:1 is considered an ideal and safe situation whereas a ratio less than 1 reflects potential cash flow problems and financial distress.

② Net Profit Margin

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Sales}}$$

Net Profit Margin is a profitability ratio that measures the percentage of each sales rupee remaining after all the costs and sales have been deducted. This measure is commonly used to assess that whether a firm is generating enough profit

from sales and all the costs are under control. The higher the net profit margin, the better.

Inventory Turnover Ratio

$$\text{Formula} = \frac{\text{Cost of goods Sold}}{\text{Average Inventory}}$$

This is an efficiency ratio that is used to measure the activity or liquidity of a firm's inventory. It is used to assess how efficient is the firm in managing its inventory by quickly converting it into cash. The answer of this ratio will come in times which is the higher the better.

Interest Coverage Ratio

$$\text{Formula} = \frac{\text{Earning before Interest and Tax (EBIT)}}{\text{Interest Expense}}$$

This is a Solvency ratio which is commonly used to measure the firm's ability to make contractual interest payments. Low interest coverage ratio suggest potential solvency issues where as high number indicates that the firm is financially strong to service its debt.

Benefits of Ratio Analysis

① Simplifying the financial Statements

Ratio analysis makes it easy to grasp the relationship between various items ~~that~~ ^{and} help to better understand the financial Statements. Without ratio analysis, it would be difficult and time consuming to understand key relations among items.

② Helping in Comparisons

Ratios greatly help in the cross-sectional analysis which involves comparing firm's ratios to other firms in the industry or industry averages. Similarly, firm can also evaluate its own performance over time through the use of ratios. This is beneficial as the firm will be able to assess how well it has performed in relations to others and over time.

③ Forecasting and Planning

The trend in cost, sales, profits can be known by computing relevant ratios and this trend analysis can be extremely useful in planning future business activities and taking the right decisions.

Measurement of efficiency and Solvency

Ratio analysis indicate the degree of efficiency in the management and utilization of assets. Similarly, the degree of solvency can also be determined by computing different ratios. These two criterias are highly important to determine the financial health of companies.

Control of performance and cost

Ratio analysis is also used as an instrument to control costs. For example, a declining profitability ratio will give a signal that business is not performing well. Also, the ratio will help to identify area that needs immediate attention. In this way ~~Business~~ business may engage in cost control measures with the help of ratios.

Limitations of Ratio Analysis

Limitation of financial statements

Ratios are calculated from the information recorded in the financial statements. Any limitation of financial statement such as errors, misstatement etc will directly affect the quality and authenticity of ratio analysis.

② Lack of Standard comparison

No fixed standards can be laid down for ideal ratios. For example, the current ratio of 2:1 is considered ideal but how much liquidity is required by firm depends on many factors like firm's size, access to short term financing and volatility of its business. A grocery store with predictable revenue may not need as much liquidity as a manufacturing firm that face unexpected shifts in demand.

③ Difference in accounting Policies

The use of different accounting policies and treatment especially relative to inventory and depreciation can distort the results of ratio analysis and make the ratio analysis of two firms non comparable.

④ Seasonal factors affect financial data

The effect of seasonality may lead to erroneous analysis and conclusion. An off season period in business may distort analysis of activity or profitability ratios for businesses that sell seasonal products. For example, financial

information of lawn care or a roofing business might reflect low revenue in certain seasons of the year which might not depict the true picture of the business.

Quantitative analysis based on historical information

Ratios are the tools of quantitative analysis that ignore the qualitative factors. For example, high current ratio may not necessarily mean sound liquid position if current assets include large inventory of obsolete items. Also ratios are based on historical information that might not prove useful in predicting the future.



DATE: ___/___/___

CSS - 2014

1. Current Ratio

$$\text{Formula} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$= \frac{72000}{69000}$$

$$= 1.04 : 1$$

$$= 1.04 : 1$$

2. Quick Ratio

$$\text{Formula} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$= \frac{72000 - 45500}{69000}$$

$$= 0.38 : 1$$

$$= 0.38 : 1$$

3. Inventory Turnover

$$\text{Formula} = \frac{\text{Cost of goods sold}}{\text{Inventory}}$$

$$= \frac{106000}{45500}$$

$$= 2.32 \text{ times}$$

$$= 2.32 \text{ times}$$

Average collection Period

$$\text{Formula} = \frac{\text{Receivables} \times 365}{\text{Sales}}$$

$$= \frac{25000 \times 365}{160,000}$$

$$= 57.03 \text{ days}$$

Debt Ratio

$$\text{Formula} = \frac{\text{Total debt} \times 100}{\text{Total Assets}}$$

$$= \frac{69000 + 22950}{150,000}$$

$$= 61.3 \%$$

Times interest earned ratio

$$\text{Formula} = \frac{\text{EBIT}}{\text{interest expense}}$$

$$= \frac{17000}{6100}$$

$$= 2.8 \text{ times}$$

Gross Profit Margin

$$\text{Formula} = \frac{\text{Gross Profit} \times 100}{\text{Sales}}$$

$$= \frac{54000 \times 100}{160,000}$$

$$= 33.75 \%$$

DATE: ___/___/___

8. Net Profit Margin

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Sales}}$$

$$= \frac{6540 \times 100}{160,000}$$

$$= 4.08\%$$

9. Return on total assets

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Total Assets}}$$

$$= \frac{6540 \times 100}{150,000}$$

$$= 4.36\%$$

10. Return on common equity

$$\text{Formula} = \frac{\text{Net Profit} \times 100}{\text{Equity}}$$

$$= \frac{6540 \times 100}{31500}$$

$$= 20.76\%$$

11. Market to Book ratio

$$\text{Formula} = \frac{\text{Market Value of Share}}{\text{Book value per share}}$$

$$\begin{aligned} \text{Book value} &= \frac{31500}{3000} \\ &= \$10.5 \end{aligned}$$

$$\text{Market to book ratio} = \frac{25}{10.5}$$

$$= 2.38 : 1$$



CSS - 2017

1. Current Ratio

$$\text{Formula} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$\begin{aligned} \text{Current assets} &= 10,000 + 15,000 + 20,000 \\ &= 45,000 \end{aligned}$$

$$\begin{aligned} \text{Current ratio} &= \frac{45,000}{12,000} \\ &= 3.75 : 1 \end{aligned}$$

The company has 3.75 times of current assets as compared to current liabilities. The company has sound liquidity position as it can easily pay off its short term obligations. Also, the business is unlikely to face cash shortage in short term. However, this is a very high ratio that may indicate that current assets are not utilized efficiently.

DATE: ___/___/___

2. Quick Ratio

$$\text{Formula} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current \text{P}Liabilities}}$$

$$= \frac{45000 - 20,000}{12000}$$

$$= 2.08 : 1$$

Inventory is ~~the~~ ^{the} least liquid asset and even after deducting it, the business can cover its current obligations 2.08 times. This is the ideal scenario and a positive indicator of company's financial resources to remain solvent in the short term.

→ It means that company's current asset largely comprise more liquid assets.

3. Average Collection Period

$$\text{Formula} = \frac{\text{Receivables} \times 365}{\text{Sales}}$$

$$= \frac{15000 \times 365}{500,000}$$

$$= 10.95 \text{ days}$$

The business takes 10.95 days to convert its receivables into cash. This

is a good number that reflect effective collection policy. It also means that there are less chances of the occurrence of bad debts and loss of earning to the firm.

Times interest earned

$$\text{Formula} = \frac{\text{EBIT}}{\text{Interest}}$$

To find EBIT

Sales	500,000
less CGS	(300,000)
Gross Profit	200,000
less operating expense	(60,000)
EBIT	140,000

$$\text{Interest coverage ratio} = \frac{140,000}{40,000}$$

$$= 3.5 \text{ times}$$

The ratio indicates that company can easily cover its ^{interest} debt payment 3.5 times from its earning. The business has a margin of safety and even if earnings reduced by few percents, the firm will be able to pay debt obligations. Hence, currently the business is at low risk of bankruptcy.

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5. Inventory Turnover

$$\text{Formula} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$
$$= \frac{300,000}{20,000}$$
$$= 15 \text{ times}$$

The business has effectively sold its inventory 15 times over. This is a good indicator that restock rates and sales are balanced. The business will neither run out of products nor have an abundance of unsold items filling up storage space.



CSS - 2020 Q #6

(a) Time Series v/s Cross Sectional Analysis
evaluation of

Time Series analysis is the firm's financial performance over time using ratios analysis. Comparison of current to past performance using ratios enables to assess the firm's progress. Developing trends can be identified by performing multiyear

Comparisons and any significant year to year changes may be detected. This is highly crucial as some changes may signal a problem especially if the same trend is not industry wide phenomenon.

In contrast, cross sectional analysis is the comparison of different firms' financial ratios at the same point in time. It is performed to assess how well the firm has performed in relation to other firms in the industry, especially its key competitors. Cross-sectional analysis, often termed as benchmarking has become very popular.

2) Horizontal Analysis v/s Vertical Analysis

Horizontal analysis, also known as trend or time series analysis evaluate company's financial trend over a certain period of time. This trend is usually performed for the companies that have been operating for a long period of time. The figures from one time period to the figures from the base period to

DATE: ___/___/___

get an overview of changes over time..

Horizontal analysis helps to track patterns in the financial statements data and spot potential problems and opportunities.

On the other hand, vertical analysis which is also known as common size analysis, is analysis performed vertically inside of a column rather than horizontally across time periods. Vertical analysis translates figures within financial statements to percentage of a base year which is 100%. For example in the vertical analysis of balance sheet, base figure would be total assets or liabilities.

Horizontal

v/s

Vertical

→ performed across time period

→ performed vertically inside of a column

→ represents changes over periods

→ represents amounts as percentage of base

→ examines many reporting period

→ focus on one reporting period

→ helps to compare firm current status to its past

→ helps to compare one firm's status to another

(c) Liquidity ratios versus debt Ratios

Liquidity refers to the firm's ability to satisfy its short term obligations as they come due. Liquidity ratios measure the adequacy of liquid assets and can provide early signs of cash flow problem if the liquidity is declining. The most common liquidity ratios are:-

- 1) Current Ratio
- 2) Quick Ratio
- 3) Net Working Capital

Debt Ratios /

Solvency ratios on the other hand measure company's ability to meet long term debts and continue to operate in the future. These ratios address more serious issues that generally take longer to work out and may necessitate restructuring of a company's operations. For example, management facing insolvency issues may take tough decisions to reduce debt by closing plants. Popular Solvency ratios include:-

- 1) Debt to Equity Ratio
- 2) Interest Coverage Ratio
- 3) Debt to Asset Ratio

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Both liquidity and debt ratios demonstrate their effectiveness in assessing a company's financial condition through different dimensions.

(d) Turnover ratios versus Profitability Ratios

Turnover ratios, also known as activity or efficiency ratios measure the speed with which various accounts are converted into sales or cash. In other words, turnover ratios measure how efficiently the business manages its current assets. Turnover ratios typically evaluate dimensions of inventory management, disbursements and collections.

Most common turnover ratios are :-

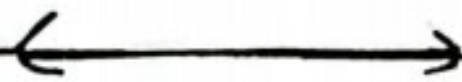
- ① Inventory turnover ratio
- ② Accounts Receivable collection period
- ③ Accounts payable turnover ratio

On the other hand, profitability ratios evaluate the firm's profits with respect to given level of sales, level of assets or equity. In a sense, they are used to assess business's ability to generate earnings compared to its expenses. Owners, creditors and management

pay close attention to profitability ratios because profitability is essential for solvency and survival. Most notable profitability ratios are:-

- 1) Gross Profit Margin
- 2) Operating profit margin
- 3) Net profit margin
- 1) Return on Assets
- 2) Return on Equity

Hence, turnover ratios measure the efficiency of the current assets while profitability ratios assess the performance of firm and its capacity to generate profit.



CSS - 2021

1) Current Ratio

$$\text{Formula} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

$$\text{Example} = \frac{200}{100} = 2 : 1$$

Current ratio is a liquidity ratio that measures a company's ability

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to pay short term funds. Thus, it analysis that whether current assets are able to satisfy current liabilities. The ratio 2:1 means that current assets are double the amount of current liabilities which is considered an ideal situation. Current ratio less than one signals liquidity problem ~~and cash shortage~~ as business current assets cannot fully pay off current liabilities. This is an alarming situation as business can face severe cash shortage and a threat to remain solvent in the short term.

A higher current ratio indicates greater degree of liquidity and ~~and~~ provide a signal that liquid funds provide large cushion to cover liabilities.

Such businesses are unlikely to face ^{short term} solvency issues or cash shortage. However, abnormally high current ratio e.g. 7:1 despite suggesting high liquidity is not a preferable figure. It is because such high figure indicate that business is not using its current assets efficiently or properly managing its working capital. For example, a business might be holding too much idle cash that could be invested elsewhere to earn a return.

Quick Ratio

$$\text{Formula} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current liabilities}}$$

Quick ratio is a conservative measure of liquidity because it does not include all the current assets, rather those that are most liquid. Hence, inventory is a notable exclusion as it is least liquid asset.

Quick ratio is the conservative version of current ratio but both ratios have the same interpretation.

A quick ratio that is equal to or greater than 1 suggests that company has enough liquid assets to meet ~~access~~ short term obligations. However, as with the current ratio, a very high quick ratio is not a good sign as it may indicate that the business is sitting significant amount of capital that could be better invested to expand the business.

While interpreting quick ratio, it is important to note that optimal quick ratio for a business depends on many factors like nature of industry, age and credit worthiness of the firm. For example, an established business with strong supplier relationship and good credit history may operate on low quick ratio than a start-up.

DATE: ___/___/___

(iii) Average Collection Period

$$\text{Formula} = \frac{\text{Account Receivables} \times 365}{\text{Credit Sales}}$$

Average collection period refers to the amount of time it takes for a business to receive payments owed by receivables. This ratio is an indicator of the efficiency of firm's receivables management practices.

The lower the collection period, for example 10 days, the more efficient is the firm in collecting its payments. Lower collection period also reduces the chances of bad debts as firm collects payments faster. On the other hand, if the collection period is really high, it means that the receivables are taking longer to pay. This increases the risk of bad debts and chances of loss. Without cash collections, the company may face liquidity issues to pay its short term bills and can even go insolvent in the worst case scenario.

Times interest earned / Interest Coverage Ratio

$$\text{Formula} = \frac{\text{Earning before interest and tax (EBIT)}}{\text{interest expense}}$$

This ratio measures a company's ability to pay the interest expense on the outstanding debt. This ratio is highly important as company may not be able to survive if it cannot pay interest on existing obligations.

A high interest coverage ratio is always preferred to a lower one. For example, interest coverage ratio of 7 means that company can easily pay its interest 7 times from its earnings.

It also means that company has a large financial cushion against a temporary downturn in revenues. Hence it is a good indicator of company's financial health. However, while interpreting the ~~ratio~~ interest cover ratio, it should be kept in mind that too high ratio may also suggest that company is not efficiently utilizing debt by not borrowing enough to expand.

On the other hand, a low ratio means that low amount of profit is available to service debt payments. If the ratio is less than

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1, it means that firm cannot pay interest even once and is on the verge of bankruptcy. In such a case, firm should opt long term measure such as restructuring of capital.

(V) Inventory turnover

$$\text{Formula} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$

Inventory turnover is an efficiency ratio that tells the number of times the business has sold and replenished its inventory over a specified period.

A low inventory turnover for example 2, might be a sign of weak sales or excessive inventory. This further leads to many other problems like increased storage cost of unsold inventory. Similarly, inventory can also become obsolete if kept for too long which further reduces its chance of being sold. A low ratio may also indicate decreased market demand for certain items which may cause a company to change its pricing or take measures to align its products to customer's demand.

High ratio on the other

hand suggest Strong Sales and a Competitive firm.

The interpretation of inventory turnover is meaningful only when it is compared with other firms in the same industry or with firm's own past turnover. For example, an inventory turnover of 30 would not be unusual for a grocery store where as the optimal inventory turnover for an aircraft manufacturer might be 5 per year.



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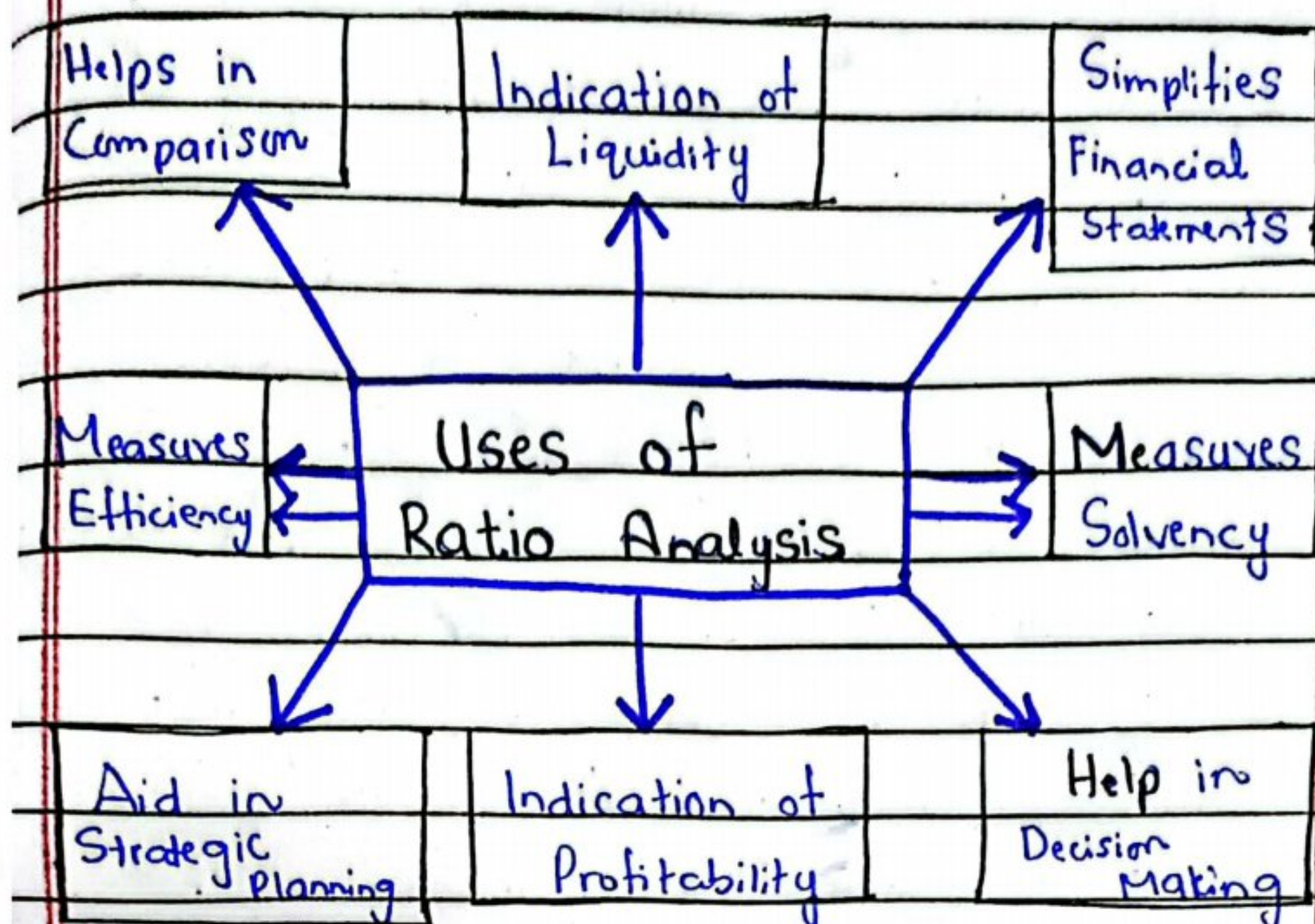
CSS - 2022

Ratio Analysis

Every business needs effective planning and financial management in order to become successful and sustainable. One of the most popular tool that aids to achieve these objectives is Ratio Analysis. Ratio analysis compares relationships between financial statements accounts to analyze and monitor the firm's performance. This analysis is of major significance to variety of interested parties who regularly need to monitor the firm's performance. Major interested parties include:-

- Creditors
- Investors
- Management

There are number of ways how ratio analysis helps stakeholders to better understand the financial health of the business. From simplifying the financial statements to providing different measures of financial performance, ratios provide many useful insights to the stakeholders



Indication of Liquidity

Ratio analysis include different measures to test the liquidity of the firm.

These measures include current ratio, quick ratio and net working capital.

This indication is highly important because a common precursor to financial distress is low and declining liquidity and ratio analysis can provide early signs of such problems.

short-term.

For creditors, these ratios are very helpful as it helps them to decide whether to extend credit to a company. Creditors want to be sure

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that the company they lend is liquid and can pay them back. Any hint of financial distress, less say current ratio less than 1, may make creditors to stop giving ~~loans~~ ^{Credit} to the company.

Investors also analyze liquidity ratios to ensure that company is financially healthy and worthy of their investment.

However, too high liquidity is a red flag for investors as it means that assets are not being efficiently used.

Similarly, management can use liquidity ratios to detect any problem in the management of assets. For example, if liquidity is declining due to low sales, management may change its pricing policy.

Indication of Profitability

Ratio analysis provide stakeholders with useful profitability measures like Gross Profit Margin, Net Profit Margin, Return on Assets etc. on which owners, creditors and management pay close attention.

Profitability ratios catch the attention of investors as it helps them to take investing decisions. Good profitability ratios instill confidence in investors that the business is likely to provide them with

good returns. As a result, investors will invest in such business.

Management use profitability ratios to evaluate business performance in creating profit and gaining competitive advantage.

Also, it can be used to set corporate goals as high profit signal growth opportunities.

Creditors and lenders use profitability ratios in addition to liquidity ratios to evaluate financial health of a company.

If a company is continuously facing losses, lenders may disqualify their credit facilities or may not extend them further because continuously declining profitability ratios suggest impending business failure.

Help in Measuring Solvency

Solvency ratios evaluate business ability to fulfill long term debt requirements. Solvency ratios include debt ratios, interest coverage ratio and debt to equity ratio and are important metrics to determine how much is the firm financially stable.

Lenders and creditors use the debt ratio to estimate the amount of lending risk they will incur by extending credit to the firm. They are more likely to lend when the ratio is low as firms with low

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debt ratio have low financial burden.

Because creditors claim must be satisfied before earnings can be distributed to shareholders, current and prospective investors pay close attention to these ratios as it helps them taking their investing decisions.

Management also use debt ratios to assess long term solvency of the firm. and take actions accordingly. For example, if debt ratios indicate that the solvency of the firm is declining, management can take certain measures like restructuring of capital to prevent the company from default.

Help to Assess Efficiency

Ratio Analysis include many activity ratios to measure efficiency of the business. Turnover ratios of inventory, receivables measure how well the firm is managing its current assets or in other words, how quickly the firm is converting its assets into cash.

High efficiency is a positive signal to both creditors and investors.

High efficiency reflect strong sales and a competitive firm which greatly attracts investors

as such firms are likely to give good return. Similarly, creditors are likely to lend to highly efficient firms.

Also, they are a useful tools for managers to gain insights into company's asset management practices. For example, if efficiency is declining due to low sales, it would be easily reflected in the low inventory turnover ratio.

Help in Simplifying and Comparing the financial statements

All the uses of ratio analysis for the stakeholders described above are only possible because ratio analysis simplify the complex accounting figures and the relationship among them. Ratio analysis greatly help in the summarization of financial data and the assessment of managerial efficiency, credit worthiness and earning capability.

This ^{simplification} ~~comparison~~ makes the comparison among and within firm very easy. For example, creditors can easily compare firm's liquidity and solvency with its part measures or with

other firms to evaluate its financial health.

Similarly, investors can compare ratios of two firms to decide in which company to invest. Managers also use ratios to compare their performance with competitors or the industry average to assess their standing in the market.

Aid to decision making

The major benefit of ratio analysis and the prime reason of undertaking this analysis is to take the right decision. The output of inculcating all the efforts in conducting the analysis is the quality decision making. Whether to supply goods on credit, whether to give loan, in which firm to invest, whether to expand or downsize, all these decisions taken by stakeholders are made with the help of ratio analysis.